

STATEMENT OF BASIS FOR MERCK SHARP & DOHME CORP. - RAHWAY

TITLE V OPERATING PERMIT RENEWAL

Program Interest (PI): 41712 / Permit Activity Number: BOP190001

I. FACILITY INFORMATION

Merck Sharp & Dohme Corp.- Rahway is located at 126 E Lincoln Ave, Rahway NJ 07065 – 2000. (Union County) consisting of a pharmaceutical research & development related equipment. The facility is owned by Merck Sharp & Dohme Corp. and is operated by Merck Sharp & Dohme Corp.

The facility is classified as a major facility based on its potential to emit 158 tons of NO_x, 220 tons of PM₁₀, 220 tons of PM_{2.5}, 272 tons of SO₂, 236 tons of TSP and 188 tons of VOC, per year.

This permit allows individual hazardous air pollutants to be emitted at a rate not to exceed: 5200 pounds of acetonitrile, 60 pounds of acrolein, 40 pounds of arsenic, 28 pounds of beryllium, 36 pounds of cadmium, 0.76 pounds of cobalt, 0.14 pounds of dimethylbenz(a)anthracene(7,12-), 5200 pounds of dimethyl formamide(N,N-), 5280 pounds of formaldehyde, 11440 pounds of hexane, 82 pounds of lead, 58 pounds of manganese, 28 pounds of mercury, 48 pounds of nickel and 220 pounds of polycyclic organic matter, per year.

II. AREA ATTAINMENT CLASSIFICATION

The Federal Clean Air Act (CAA) sets National Ambient Air Quality Standards (NAAQS) for six common air pollutants. These commonly found air pollutants (also known as "criteria pollutants") are particulate matter, ground-level ozone, carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and lead. The US Environmental Protection Agency (USEPA) also classifies areas as "attainment" or "nonattainment" for each criteria pollutant, based on the magnitude of an area's problem. Nonattainment classifications are used to specify what air pollution reduction measures an area must adopt, and when the area must reach attainment. Currently, the entire State of New Jersey is designated as nonattainment for the 8-hour ozone NAAQS. New Jersey is designated attainment for all other pollutants. For nonattainment classification refer to <https://www.epa.gov/green-book/green-book-national-area-and-county-level-multi-pollutant-information>.

III. BACKGROUND AND HISTORY

The equipment that emits air contaminants from this facility include: A gasoline dispensing facility (less than 10,000 gal/month), a 10,000 gal bulk gasoline storage tank equipped with a CARB-certified Stage I enhanced vapor recovery system (EVRS), three 99.5 MMBTU/hr. natural gas/No 2 fuel oil fired boilers (two of which are equipped with selective catalytic reduction (SCR), three 249 MMBTU/hr. natural gas/No.2 fuel oil dual fired boilers equipped with catalytic oxidizers and SCR, ten prep labs, five environmental control storage tanks that vent through a 90% efficient carbon absorption unit, and a system of equalization and neutralization tanks to treat plant wastewater.

This permit also incorporates eight general operating permits that the facility obtained for emergency generators. These generators are permitted to operate up to 100 hours per year for testing and maintenance. The total increase in facility emissions due to the addition of these new generators are 0.44 tons of NO_x, 0.1 tons of VOC, 0.4 tons of CO, 0.017 tons of TSP, 0.044 tons of PM₁₀, 0.044 tons of PM_{2.5}, 0.049 tons of formaldehyde, 0.0048 tons of acrolein and 170 tons of CO₂(e), per year.

Table 1 - Operating Permit Revision History (located at the end of this document) provides a summary of all the changes that have been incorporated into the operating permit through seven-day notice changes, administrative amendments, minor modifications, or significant modifications since the approval of the initial operating permit or the most recent renewal thereof. Please refer to the attached explanation sheet for the structure and configuration of conditions of approval, included in the Facility Specific Requirements section of this permit.

A Facility-Wide Risk Assessment was conducted as part of the review of this permit application and health risk was determined to be negligible consistent with NJDEP Technical Manual 1003.

This is a Permit Renewal with Renewal/Permit Modification and includes the following changes:

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- i) Four microturbines (insignificant source IS7) were removed from the permit.
- ii) The following emergency generator general operating permits (EMGEN GOPs) were added to the permit: BOP170003 (E990040), BOP180001 (E990042), BOP180002 (E990041), BOP190002 (E990043), BOP200001 (E990044), BOP210001 (E990045), BOP210002 (E990046) and BOP210003 (E990047).
- iii) EMGEN E990002 was removed from the permit.
- iv) The following pieces of equipment were removed from the permit: E805068, E805069, E820045, E820049, E820058, E820059, E820106 and E899208.
- v) HAP emissions were updated in line with the reporting thresholds specified in N.J.A.C. 7:27-17.9.

The changes made during this permitting action result in the following allowable annual emission changes: VOC 0.23 ton (reduction), NOx 1.66 ton (reduction), CO 1.28 ton (reduction), SO2 1.0 ton (reduction), TSP 0.34 ton (reduction), PM10 0.34 ton (reduction), PM2.5 0.34 ton (reduction), formaldehyde 0.049 ton (increase) and acrolein 0.0048 ton (increase).

IV. BASIS FOR MONITORING AND RECORDKEEPING REQUIREMENTS

The facility's operating permit includes monitoring, recordkeeping and reporting requirements that are sufficient to demonstrate the facility's continued compliance with the applicable requirements consistent with the following:

1. Provisions to implement the testing and monitoring requirements of N.J.A.C. 7:27-22.18, the recordkeeping and reporting requirements of N.J.A.C. 7:27-22.19, and all emissions monitoring and analysis procedures or compliance assurance methods required under the applicable requirements, including any procedures and methods promulgated pursuant to 40 CFR 64; and
2. Where the applicable requirement does not require direct periodic monitoring of emissions, the Department requires periodic monitoring of surrogate parameters sufficient to yield reliable data from the relevant time period that are representative of the facility's compliance with the permit.

For the gasoline dispensing facility U53000 the facility monitors the monthly gasoline throughput as a surrogate for the long term (TPY) VOC emissions.

The gasoline tank is equipped with a CARB-certified Stage I enhanced vapor recovery system (EVRS).

For boilers in emission unit U750001, the facility monitors fuel use as the surrogate for the long-term (TPY) emission limits for VOC, NOx, CO, SO2, TSP, PM-10 and PM-2.5. Surrogate monitoring for the short-term (lb/hr.) emission limits are combustion process adjustment for NOx and CO, and fuel oil sulfur content for SO2.

Boilers 3 and 9 are equipped with SCR.

Boilers 10, 11 and 12 are equipped with catalytic oxidation and SCR.

For the 10 prep labs in emission unit U800000, the facility keeps an accurate count of all raw materials entering the laboratories and calculates VOC, CO and HAP emissions based upon the worst-case estimates for the laboratory activities performed.

For the fixed roof storage tanks in emission units U980000 the facility monitors the total throughput (MMgal/yr.) and the name and vapor pressure of each VOC stored as surrogates for the long-term (TPY) emission limits for VOC and HAPs.

For the emergency generators and fire pumps in emission unit U990000 the facility monitors the hours of operation as the surrogate for the long-term (TPY) emission limits for VOC, NOx, CO, TSP, PM-10 and PM-2.5, and diesel fuel sulfur content for SO2.

3. In some cases, direct periodic monitoring of emissions and/or surrogate parameters is not required due to one or more of the following:

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- Equipment size and capacity limitations,
- Subject equipment being permitted at the maximum rated capacity,
- There is no specific state or Federal standard that applies to this piece of equipment,
- Not a pollutant of concern for this piece of equipment,
- Agreements with EPA on the frequency of testing and monitoring for combustion sources.

V. APPLICABLE STATE AND FEDERAL RULES

The facility is subject to New Jersey Air Pollution Control Regulations, codified in N.J.A.C. 7:27-1 through 34, as applicable. A complete text of these regulations is available at:

<http://www.nj.gov/dep/aqm/rules27.html>

The facility is also subject to Federal regulations listed below.

NSPS Subpart A:	General Provisions
NSPS Subpart Dc:	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
NSPS Subpart Db:	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
NSPS Subpart IIII:	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
NSPS Subpart JJJJ:	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
MACT Subpart A:	General Provisions
MACT Subpart ZZZZ:	National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
MACT Subpart CCCCCC:	National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities
MACT Subpart JJJJJJ:	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

The Greenhouse Gas (GHG) emissions from this facility are 1,284,444 TPY CO₂e and there is a 170 TPY GHG emissions increase. This renewal is not subject to PSD rules at 40 CFR 52.21.

VI. FACILITY'S COMPLIANCE STATUS

The Responsible Official at the facility has certified that the facility currently meets all applicable requirements of the Federal Clean Air Act and the New Jersey Air Pollution Control Act. Based on this certification, the Department's evaluation of the information included in the facility's application, and a review of the facility's compliance status, the Department has concluded that this air pollution control operating permit should be approved.

The facility has submitted a timely and complete application to renew their operating permit and an application shield is in effect.

This operating permit also includes a permit shield, pursuant to the provisions of N.J.A.C. 7:27-22.17. A permit shield provides that compliance with the relevant conditions of the operating permit shall be deemed compliance with the specific applicable requirements that are in effect on the date of issuance of the draft operating permit, and which form the basis for the conditions in the operating permit.

Also, prior to the expiration of the five-year period, the facility will be required to apply for a renewal of this operating permit, at which time the Department will evaluate the facility and issue a public notice with its findings.

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VII. EXEMPT ACTIVITIES

The facility's operating permit does not include exempt activities such as office and interior maintenance activities, maintenance shop activities, food preparation facilities, cafeterias and dining rooms, etc. A complete list of exempt activities, as allowed by the Operating Permit rule, can be found at N.J.A.C. 7:27-22.1.

New Jersey Department of Environmental Protection

Operating Permit Revision History

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Permit Activity Number	Type of Revision	Description of Revision	Final Action Date
BOP210003	General Operating Permit (GOP).	1.03 MMBTU/hr. (HHV) Emergency Gen. (100 kW) Diesel fuel.	11/1/2021
BOP210002	GOP	2.65 MMBTU/hr. (HHV) Emergency Gen. (200 kW) Natural Gas.	6/18/2021
BOP210001	GOP	10.317 MMBTU/hr. (HHV) Emergency Gen. (750 kW) Natural Gas.	5/25/2021
BOP200001	GOP	3.07 MMBTU/hr. (HHV) Emergency Gen. (250 kW) Natural Gas.	8/27/2020
BOP190003	Administrative Amend.	Facility contact-personnel updated.	8/8/2019
BOP190002	GOP	2.5 MMBTU/hr. (HHV) Emergency Gen. (250 kW) #2 fuel oil.	7/2/2019
BOP180002	GOP	2.06 MMBTU/hr. (HHV) Emergency Gen. (200 kW) Diesel fuel.	5/31/2018
BOP180001	GOP	2.06 MMBTU/hr. (HHV) Emergency Gen. (200 kW) Diesel fuel.	5/31/2018
BOP170003	GOP	2.65 MMBTU/hr. (HHV) Emergency Gen. (200 kW) Natural Gas.	8/23/2017
BOP170002	Administrative Amend.	Patricia Johnson listed as the facility air permit contact and delegated authority.	5/4/2017
BOP170001	Minor Modification	Bldg.83 EPU fire pump (E990009) to replace the Bldg.76 fire pump (E990020). Bldg.83 pump house demolished. E990020 taken out of service.	4/7/2017

FACILITY NAME (FACILITY ID NUMBER)
BOP050001

Activity Number assigned
by the Department

New Jersey Department of Environmental Protection Facility Specific Requirements

Emission Unit Number
assigned by the Facility

Brief description of
emission unit

Emission Unit: U40 Sewage Sludge Incinerators
Operating Scenario: OS Summary

OR

OS2 Fluidized Bed Incinerator

OS Summary lists all rules and requirements that apply to an emission unit. An emission unit may contain one or more pieces of equipment and corresponding operating scenarios.

OSX denotes the operating scenario number and lists the rules and requirements that apply to a scenario. An operating scenario represents various ways (or scenarios) a piece of equipment is permitted to operate.

Item
Number

Description of applicable
requirement

Monitoring method to
ensure compliance

Recordkeeping to show
facility's compliance

Actions and submittals
required for the facility

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement	Submittal/Action Requirement
3	The permittee shall conduct an annual performance test for each pollutant in Table 2 of 40CFR62 Subpart LLL between 11 and 13 calendar months after the previous performance test or within 60 days of a process change. [40 CFR 62.16000(a)]	Other: Conduct the performance test using the test methods, averaging methods and minimum sampling volumes or durations as specified in 40CFR62 Subpart LLL and according to the testing, monitoring and calibration requirements specified in 40 CFR 62.16015(a). [40 CFR 62.16000(a)].	Other: (1) Maintain records of the results of initial, annual and any subsequent performance tests conducted to determine compliance with the emission limits and standards and/or to establish operating limits, as applicable. [40 CFR 62.16025(e)].	Submit a report: Annually to the Administrator and to the Department. The permittee shall submit an annual compliance report as specified in 40 CFR 62. [40 CFR 62.16000(d)]

Rule citation for
applicable requirement

Rule citation for
monitoring requirement

Rule citation for
recordkeeping requirement

Rule citation for submittal/
action requirement